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road system evaluation

ORIGINAL

OLYMPIC

NATIONAL PARK / WASHINGTON

Prepared by the Denver Service Center, Western Team.

Reviewed by the Superintendent, Olympic National Park, Acting Regional Director, Pacific Northwest Region, their staff, and Federal Highways Administration, Western Direct Federal Division. Comments were incorporated.

ROAD SYSTEM EVALUATION

OLYMPIC NATIONAL PARK
Washington

December 1985

U.S. Department of the Interior / National Park Service

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SUMMARY

This road system evaluation for Olympic National Park inventories the existing road system and classifies and makes recommendations for all park roads based on projected visitor use and current conditions. The tables list natural and cultural resource considerations in road design and describe the National Park Service's functional classification system. The accompanying chart summarizes the most significant recommendations of the plan by priority.

Summary of Major Recommendations by Priority

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Proposed Traveled Way Width (ft)/Surface	Proposed Improvement	Estimated Cost*	Compliance Requirements	Comments
Priority Group 1								
103	Soleduck Valley Road (US 101 to trailhead)	13.96	II	22 P	Reconstruction	$6,785,000	EA	FY 86
205	Soleduck Lodge Road	0.26	III	18 P	Reconstruction		EA	Project underway by NPS
206	Soleduck Campground Roads	1.75	III	14 P	Reconstruction	(included in 103 above)	EA	FY 86
Priority Group 2								
	Kessler and Canoe Creek Bridges along Quinault Road				Replacement	$ 240,000	CE	
Priority Group 3								
224	Lake Crescent Access and Expansion Roads	0.50	III	20 P	Rehabilitation	$ 100,000	CE/EA and NHPA, sec. 106	
Priority Group 4								
101	East Beach Road (park boundary to north park boundary)	2.93	II	20 P	Rehabilitation/ reconstruction	$1,610,000	EA	
112	East Beach Picnic Area Road	1.50	II	18 G	Rehabilitation	$ 360,000	CE/EA	Additional parking and new access needed
Priority Group 5								
105	Quinault South Shore (park boundary to Route 104)	1.10	II	18 P	Reconstruction	$ 460,000	EA	
210	Graves Creek Road	6.29	II	18 G	Reconstruction	$ 775,000	CE	
211	Graves Creek Campground	0.37	III	12 G	Rehabilitation	$ 36,000	CE	
Priority Group 6								
102	North Shore Road							
Sec. 1	(US 101 to campground)	0.55	II	18 P	Overlay	$ 75,000	CE	
Sec. 2	(campground to picnic area)	2.75	II	18 G	Rehabilitation	$ 370,000	CE	
226	Fairholm Spur Road	0.20	III	18 P	Rehabilitation	$ 30,000	CE/EA	
Priority Group 7								
229	Kalaloch Lodge Road	0.50	III	18 P	Reconstruction	$ 200,000	CE	Also include overnight parking and ocean strip
214	Ruby Beach Road	0.18	II/III	20/14 P/G	Rehabilitation/ overlay	$ 100,000	CE	
219	South Beach Road	0.26	III	20 G	Rehabilitation	$ 200,000	CE	Rehabilitate gravel parking also
213	Kalaloch Campground Road	1.20	III	14 P	Rehabilitation	$ 125,000	CE	DCP required

IV

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Proposed Traveled Way Width (ft)/Surface	Proposed Improvement	Estimated Cost	Compliance Requirements	Comments
Priority Group 8								
207	Staircase Road (park boundary to trailhead)	1.05	II	20 P	Reconstruction	$ 650,000	CE	
208	Staircase Campground Road and Service Roads	0.50	III	14 P	Reconstruction	$ 50,000	CE	
Priority Group 9								
401	Park Headquarters Roads	1.20	V	18 P	Overlay/ Rehabilitation	$ 160,000	NHPA, sec. 106	
221	Pioneer Visitor Center Road	0.10	III	22 P	Overlay/ rehabilitation	$ 15,000	CE	Realignment may be necessary (EA)
Priority Group 10								
109	Hurricane Hill Road	1.35	II	18 P	Rehabilitation	$ 400,000	CE/EA	
Priority Group 11								
100	Elwha Valley Road (US 101 to Lake Mills)	3.66	II	18 P	Rehabilitation/ reconstruction	$1,350,000	CE	
216	Whiskey Bend Road (Route 100 to trailhead)	4.51	II	14 G	Rehabilitation	$ 260,000	CE/EA and NHPA, sec. 106	Two-way, single lane road with turnouts
Priority Group 12								
237	Storm King Loop Road (junction old US 101 with spur to old US 101)	0.50	III	24 P	Rehabilitation	$ 100,000	CE/EA	New access road may be needed
224	Barnes Point Road (new US 101 to Lake Crescent Lodge)	0.50	II	24 P	Rehabilitation	$ 312,000	CE/EA	
Priority Group 13								
218	Deer Park Road (park boundary to viewpoint)	8.60	II	14 G	Rehabilitation/ reconstruction	$ 595,000	CE/EA	
235	Deer Park Campground	0.50	III	12 G	Rehabilitation	$ 30,000	CE	
236	Deer Park Ranger Station Loop	0.25	III	18 G	Rehabilitation	$ 25,000	CE	
Priority Group 14								
114	Ozette Road (boundary to parking lot)	2.25	II	18 P	Reconstruction	$1,050,000	CE/EA	DCP required
227	Ozette Campground Road	0.10	III	14 G	Reconstruction	$ 15,000	CE	
Priority Group 15								
104	Quinault Road							
Sec. 1	(US 101 to end of pavement	7.96	II	20 P	Rehabilitation/ reconstruction	$1,260,000	EA	
Sec. 2	(End of pavement to South Shore Road)	6.15	II	18 P	Rehabilitation/ reconstruction	$1,790,000	EA	
231	North Fork Campground Road	0.23	III	10 G	Reconstruction	$ 14,000	CE	
209	North Fork Road	3.50	II	14 G	Reconstruction	$ 400,000	CE	Two-way, single lane road with turnouts
	Big Creek Bridge				Reconstruction	$ 210,000	CE	Located on Route 104

V

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Proposed Traveled Way Width (ft)/Surface	Proposed Improvement	Estimated Cost*	Compliance Requirements	Comments
Priority Group 16								
220	Dosewallips Road	1.82	II	18 G	Reconstruction/ rehabilitation	$ 515,000	CE	Includes bridge over Constance Creek
234	Dosewallips Campground Road	0.25	III	10 G	Rehabilitation	$ 6,000	CE	
Priority Group 17								
010	Hurricane Ridge Road (Race Street to lodge)	17.65	I	24 P	Overlay	$1,500,000	CE	Needs maintenance seal coat now
200	Heart O'Hills Campground Road	1.51	III	14 P	Rehabilitation	$ 40,000	CE	
Priority Group 18								
115	Rialto Beach Road	2.60	II	18 P	Reconstruction	$1,100,000		
228	Mora Campground Road	1.63	III	20 & 14 P	Overlay	$ 200,000	CE	
116	La Push Beach Road	2.00	II	20 P	Reconstruction	$ 960,000	CE	
Priority Group 19								
217	Obstruction Point Road	7.74	III	14 G	Rehabilitation	$ 460,000	CE/EA	Two-way, single lane road with turnouts
Priority Group 20								
106	Queets Valley Road (park boundary to campground)	13.30	II	18 G	Rehabilitation/ reconstruction	$ 870,000	CE/EA	
212	Queets Campground Road	0.26	III	12 G	Rehabilitation/ reconstruction	$ 5,000	CE/EA	
Priority Group 21								
108	Lyre River Road (East Beach Road to trailhead)	0.85	II	18 P	Rehabilitation	$ 80,000	CE	
Priority Group 22								
	Hoh RV Parking		III		Reconstruction	$ 50,000	CE	Expand parking area

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*Includes 15 percent for construction engineering costs in 1985 dollars.

P = Paved
G = Gravel
EA = Environmental assessment
CE = Categorical exclusion

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INTRODUCTION

PURPOSE AND NEED FOR THE STUDY

Since passage of the Surface Transportation Assistance Act (Public Law 97-424) in 1982, the National Park Service has received significantly higher levels of funding for resurfacing, restoration, rehabilitation, and reconstruction of park roads. The act states that "On October 1 of each fiscal year, the Secretary of Transportation shall allocate the sums authorized to be appropriated for such fiscal year for park roads and parkways each according to the relative needs of the various elements of the national park system, taking into consideration the need for access as identified through land use planning and the impact of such planning on existing transportation facilities." This road system evaluation (RSE), prepared by the National Park Service in cooperation with the Federal Highway Administration (FHWA), fulfills the requirements of the act by providing a comprehensive analysis for road improvements and maintenance as related to land use activities in Olympic National Park. Recommendations are made in this RSE for NPS-owned roads and two segments of US 101 that traverse NPS lands.

Management objectives for Olympic National Park, listed in the 1976 Master Plan, include encouraging and promoting visitor accommodations on the periphery of the park, studying alternative solutions for the commercial traffic conflict on US 101 in the Lake Crescent and Kalaloch areas, and cooperating with government agencies and private enterprise in order to provide pleasing approaches to the park and convenient modes of transportation. This RSE is compatible with and provides recommendations toward the realization of those goals.

Three objectives have been accomplished in this study: (1) the existing road system has been described and evaluated through review of NPS and FHWA studies, on-site investigation, and discussions with park, regional office, and FHWA staff; (2) roads have been functionally classified according to the 1984 NPS "Park Road Standards"; and (3) road improvements have been recommended and prioritized based on visitor use projections for the next 10 years, safety, and potential for resource impacts. The net result is a document that will be used by park, region, Denver Service Center, and FHWA staff in the programming, design, construction, and maintenance of road improvements for Olympic National Park. This RSE will be used to assist in developing a 10-year road improvement program for the Pacific Northwest Region. The park has updated (September 30, 1985) the 10-238's (NPS programming tool) for all projects listed in priorities 2 through 21 to reflect the recommendations in this evaluation. Those priorities shown on the "Summary of Major Recommendations" chart should be included in the 10-year program.

PROBLEM STATEMENT

Before discussing the various issues and needs for the Olympic road system, it is important to state the philosophy for road improvements at Olympic National Park. The fundamental purpose of national parks, and Olympic in particular, is to bring humankind and the environment into closer harmony; consequently, the quality of the park experience becomes a primary concern. The distinctive character of park roads plays a basic role in providing a safe, leisurely, and unhurried experience. The park roads should be designed with extreme care and sensitivity with respect to the terrain and environment through which they pass--they are laid lightly onto the land. Finally, the park road system is not intended to provide fast and convenient transportation; hence, it is not designed as a continuation of the state- and federal-aid network.

The National Park Service developed and adopted in 1984 the "Park Road Standards" to address critical deficiencies on park roads, to enhance safety, and to prevent further deterioration or loss of the extensive capital investment in park roads and bridges, while continuing to recognize the foremost importance of protecting the irreplaceable natural and cultural resources of the national park system. The standards contain the flexibility necessary in the planning and design processes to allow for consideration of variations in types and intensities of park use, for wide differences in terrain and climatic conditions, and for protection of natural and cultural resources. Finally, because of the needed flexibility, these standards are not intended to encompass a level of prescriptive detail comparable to that normally found in design manuals.

Many existing park roads were built as logging roads before the establishment of Olympic National Park in 1938. Most of them have been upgraded by paving the original grade, often leaving sharp curves, close proximity to rivers, steep segments, and narrow shoulders. Natural destructive forces such as landslides, fault shifts, and floods have been common. Thus, with the original alignments, natural erosion, normal deterioration, and changing use patterns by visitors and local residents, many park roads are in need of rehabilitation or reconstruction.

No roads transect the national park, but US 101 forms a nearly complete loop around the boundary. Access into the park is limited largely to radial spur roads from US 101, which terminate at trailheads, campgrounds, and resorts. Current signing at these spur roads does not provide accurate information on and orientation to the facilities and activities available at the termini.

Olympic offers a wide range of scenic resources from ocean beaches to 8,000-foot mountains, and the visitor who wants to experience this variety of landscapes must drive the different park roads. Preservation and interpretation of the natural and cultural resources and visual quality along park road corridors are important points that should be reflected in any proposed road improvements.

INTERRELATIONSHIPS WITH OTHER PROJECTS

This study will draw upon existing park planning documents, such as the 1976 Master Plan, related development concept plans, and the 1977 "Interpretive Prospectus," for overall visitor use guidance. Development concept plans are programmed for the Soleduck, Quinault, Ozette, and Kalaloch developed areas. Recommendations of this RSE will be incorporated into future planning documents and the 10-year road improvement program.

This RSE draws heavily from the Road Inventory and Needs Study (1984) and the Engineering Reconnaissance Report of Park Roads (1983) reports prepared by FHWA for Olympic National Park. Much of the technical data on existing physical conditions of roads were taken from these documents. These data were weighed against management objectives and NPS resource, visitor use, and park experience data in order to make recommendations for improving the road system to meet traditional NPS values.

A number of county, state, and federal roads either pass through the park or provide sole access to park resources. Coordination is required to ensure tha' cyclic maintenance and road improvements are completed to complement park road improvements. Examples include those roads leading to the Staircase and Dosewallips areas.

EXISTING CONDITIONS

LOCATION AND DESCRIPTION OF THE PARK

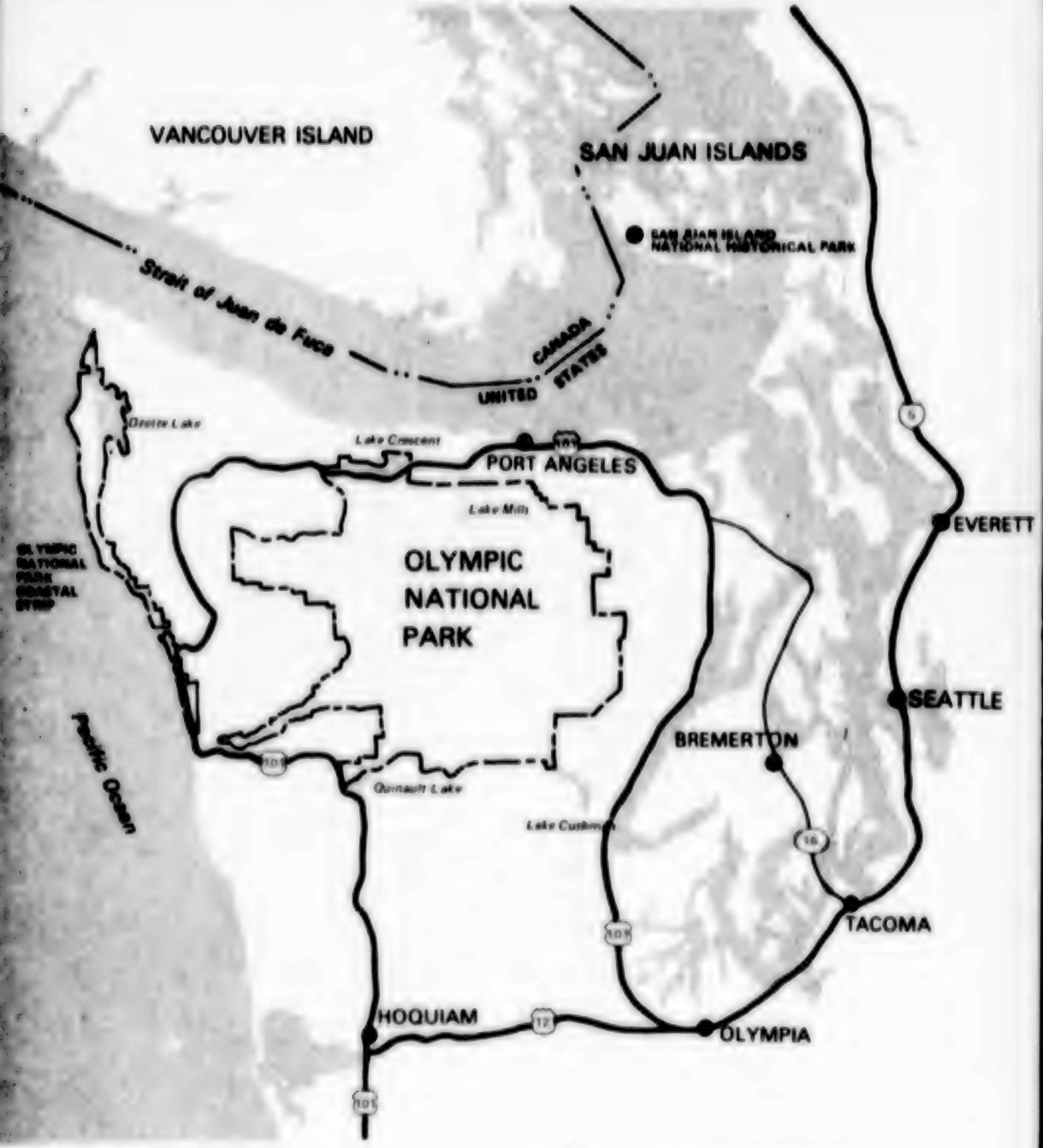
Olympic National Park is a geographically isolated and primitive area on the Olympic Peninsula in northwestern Washington. The shortest automobile route from Seattle requires crossing Puget Sound by ferry and traveling State Highways 305, 3, and 104 and US 101 to park entrances (a trip of approximately three hours). Many visitors arrive from the south via US 101 and from the north by ferry from Victoria, British Columbia, across the Strait of Juan de Fuca to Port Angeles.

Due to the moderating influence of the Pacific Ocean, the general climate of the park is maritime--mild, cloudy, and cool. Often during late summer and early fall, fog banks and low clouds move inland and fill lower valleys, while higher elevations often remain clear. Higher elevations also sustain more seasonally extreme temperatures, and frost heaving and downslope soil creep are more pronounced. Avalanches are common during periods of spring snowmelt. Precipitation is the most dramatic and influential aspect of climate in the region and ranges from 80 to 140 inches annually in western and southern lowlands to 200 inches in the form of snow on the Olympic peaks. Peak rainfall occurs between October and April, accompanied by very high precipitation runoff; swollen, flooding, and shifting rivers are a common occurrence in winter and spring. The rain shadow effect of the Olympic Range results in reduced precipitation east of the range (17 inches in Sequim, 7 miles northeast of the park).

The park is divided into two separate sections: a core of rugged mountains and forested river valleys in the heart of the peninsula and a 57-mile-long strip of Pacific coast beaches, cliffs, and tide pools. The park is environmentally diverse as it ranges in elevation from sea level to nearly 8,000 feet on Mount Olympus. The landscape of the Olympic area has been shaped by repeated uplift, subsidence, massive erosion, and four glacial advances. Outstanding geologic features include the jagged, glaciated ridges of the Olympic mountains, alpine glaciers, extensive river systems, freshwater lakes, and dramatically eroded sea stacks, islets, and reefs. Biological resources include mature stands of western hemlock, Douglas fir, Sitka spruce, and western red cedar; lush rain forests; terrestrial populations of black bear, mountain goat and sheep, deer, elk, cougar, and coyote; wild anadromous and resident fishes; and adjacent seasonal populations of whales, porpoises, sea lions, and seals.

ACCESS AND CIRCULATION SYSTEMS

Except for US 101 itself, all entrance roads into the park are mainly spurs from that arterial highway. The Ozette area, however, is reached via a county road and State Highway 112 (a state collector) from US 101. US 101, which nearly encircles the park except for the coastal unit, passes through the park for 12 miles along the south shore of Lake



LOCATION

OLYMPIC NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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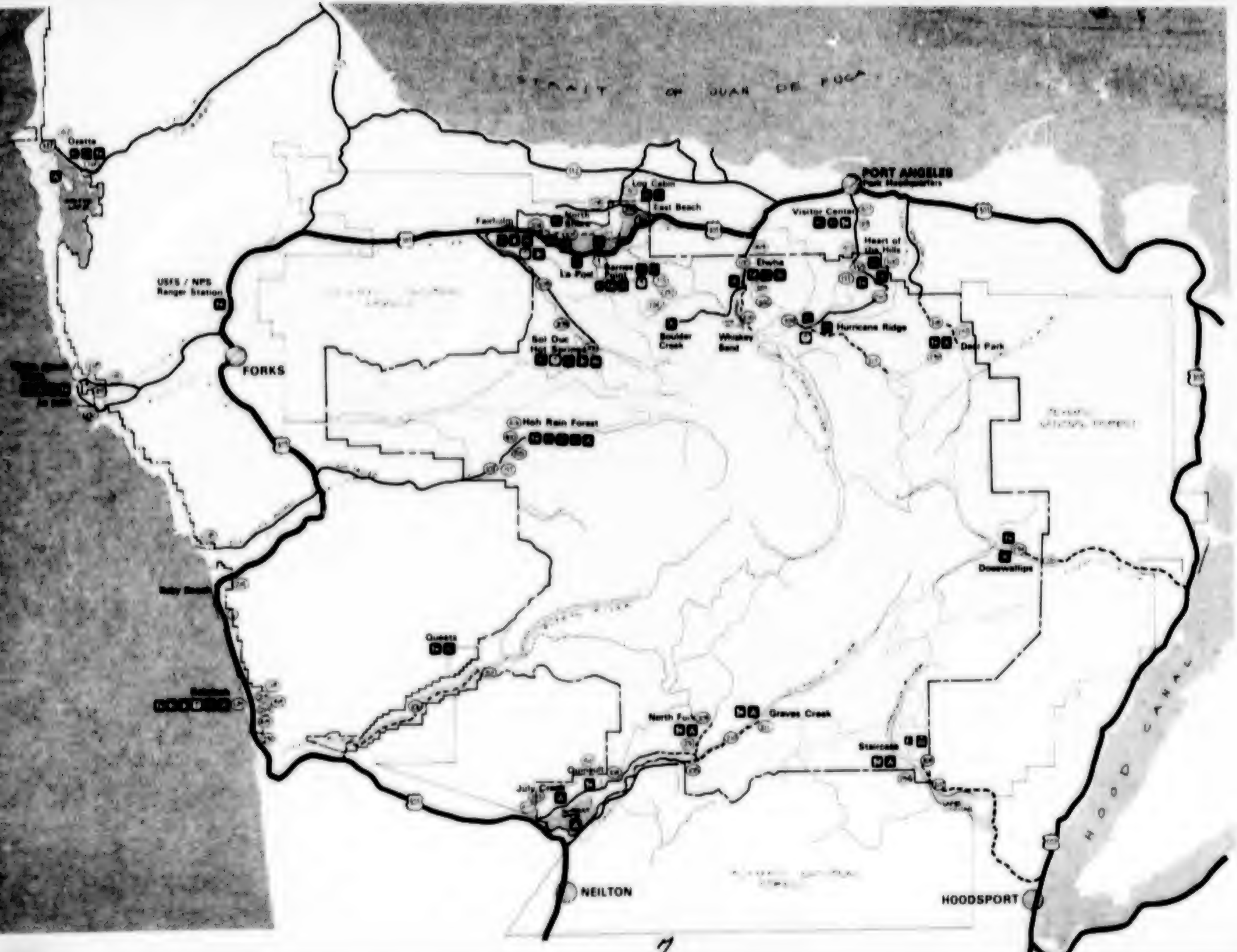

CIRCULATION AND VISITOR FACILITIES

OLYMPIC NATIONAL PARK

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Crescent and 8 miles along the Pacific coast from Ruby Beach past Kalaloch. Park entrances are numerous, and most visitors pass in and out of the park several times during a visit.

Approximately 122 miles of paved roads, 67 miles of gravel roads, and an extensive trail network comprise the circulation system of Olympic National Park. Major paved park roads used by visitors are the Heart of the Hills Road (route 010), Hoh Road (route 107), East Beach Road (route 101), Elwha Road (route 100), and Soleduck Road (route 103). US 101 is clearly the most traveled road as it passes through the park, but it serves logging trucks, other commercial vehicles, and other private uses as well as park visitors. The most popular unpaved road is the Quinault loop road, which passes through Olympic National Forest before entering Olympic National Park. These and other park roads are described in detail in the "Existing Roads Inventory" section and table 3. Visitation and traffic volumes are shown in table 1. The trail system is not described in this RSE although trailhead access and parking are addressed.

No bicycle trails have been formally designated within the park; bicyclists now use roadways. No significant problems with bicycle traffic have been identified except on US 101 in the area of Lake Crescent. The feasibility of bicycle trail development should be studied with each new road rehabilitation plan or design.

VISITOR USE

Management Concepts

Management strategies were developed during the master planning process to provide visitors a variety of ways to experience the resources of Olympic National Park. Development generally is small in scale and limited to the periphery of the park. Some visitors stay at the commercial facilities or campgrounds along the entrance roads and make side trips to points of interest, while others backpack or horsepack into the backcountry, leaving the relatively crowded conditions of the developed areas behind. This concept allows visitors an option of spending active time enjoying amenities with other people in the park environment or of seeking the solitude of wilderness. The road system is compatible with this concept.

Visitation

Visitation to the park now exceeds 3,000,000 people each year, a figure that has remained stable since 1978 (see table 2). This stabilization is expected to continue for the next 10 years. Although there is a wide cross section of national and international visitors, the greatest number of visitors come from the Seattle-Tacoma area, with most use occurring on weekends and holidays during the summer. The park is open year-round with the peak season occurring May through October in most areas. The coastal section has more year-round use, and the higher elevation areas such as Deer Park and Obstruction Point, which are usually not accessible by automobile until July, have more seasonal use fluctuations. The one exception is the Hurricane Ridge Road, which is kept open year-round to provide access for winter activities and operation of the lodge.

Facilities

Visitor activities include hiking, backpacking, downhill and cross-country skiing, sightseeing, picnicking, camping, mountaineering, beachcombing, fishing, swimming, and boating. Developments in the park to accommodate this wide variety of activities include resorts along Lake Crescent, at the Sol Duc Hot Springs, on the coast at Kalaloch, and at Hurricane Ridge. Other resorts are located outside the park boundary.

Campgrounds are numerous and are generally located at or near road ends. In 1984 over 196,000 visitors camped in the park, and recreational vehicle use has risen considerably over the last several years. Few, if any, of the campgrounds were designed for these larger vehicles, and a sense of crowding is common during heavy use periods.

Boat launches, picnic grounds, amphitheaters, and visitor centers at Port Angeles and at the Hoh Rain Forest also facilitate visitor activities. Although the majority of the backcountry is without trails, a 600-mile trail system serves hikers, backpackers, and equestrians in the park and sustains 95,000 to 100,000 visitor use nights/year, mostly between late spring and early fall.

Interpretation

Formal interpretive programs are offered at the Pioneer Memorial, Hurricane Ridge Lodge, and Hoh Rain Forest visitor centers and at most of the park campgrounds. Interpretive trails are in place at most developed areas.

The backcountry trail system is the focus of on-site interpretation through the use of pamphlets, trailside exhibits, and ranger-led walks. An interpretive prospectus for the coastal strip of the park is scheduled for completion in FY 1985.

SAFETY AND MAINTENANCE

The park has exclusive and proprietary jurisdiction for enforcement of traffic laws and investigation of accidents on park roads. A parkwide summary of accidents for the last 4 years and existing hazards on each road segment is shown in table 3, "Existing Roads Inventory." The majority of accidents involve property damage, with somewhat fewer accidents resulting in injuries and/or fatalities. The mixing of heavy

Table 1: 1984 Visitation and Seasonal Average Daily Traffic

ROADS	Staircase	Dosewallips	Deer Park	Heart O'Hills	Elwha Area	Lake Crescent			Soleduck	Rialto	La Push	Oil City	Ozette	Hoh	Kalaloch	North Shore[e] Quinault	South Shore[e] Quinault	Queets
						East Beach	North Shore	US 101										
1. Number of recreation and nonrecreation visitors[a]	76,146	16,338	5,448	260,742	285,545	154,914	82,219	1,786,035	94,124	98,744	74,065	6,420	21,098	102,613	160,655	32,715	23,369	23,218
2. Daily average vehicles[b]	135 (6 mo)	44 (4 mo)	18 (3 mo)	428 (6 mo)	242 (6 mo)	227 (7 mo)	130 (7 mo)	252 (7 mo)	245 (4 mo)	142 (7 mo)	106 (7 mo)	9 (7 mo)	39 (6 mo)	214 (4 mo)	409 (4 mo)	59 (6 mo)	42 (6 mo)	32 (7 mo)
3. Average daily traffic (#2 x 2 trips/vehicle)	270	88	36	856	484	454	278	3,787[c]	491[d]	284	212	18	78	428	818	118	84	64

CAMPGROUNDS	Staircase	Dosewallips	Deer Park	Heart O'Hills	Elwha Area	Altaire	Fairholm	Soleduck	Mora	Hoh	Kalaloch	Kalaloch - South Beach	Kalaloch - Group Use	Queets	North Fork	July Creek	Ozette	Graves Creek
4. Number of visitors using campgrounds[a]	12,258	4,513	1,928	18,181	14,021	7,207	13,047	20,430	13,721	15,562	61,341	19,941	848	3,678	765	1,279	4,278	722
5. Daily average vehicles[b]	31 (4 mo)	15 (4 mo)	7 (3 mo)	64 (3 mo)	53 (3 mo)	18 (4 mo)	46 (3 mo)	66 (3 mo)	45 (3 mo)	58 (3 mo)	128 (5 mo)	101 (2 mo)	3 (3 mo)	10 (4 mo)	2 (4 mo)	4 (4 mo)	10 (4 mo)	3 (3 mo)
6. Average daily traffic (#5 x 2 trips/vehicle)	62	30	14	128	106	36	92	132	90	116	256	202	6	20	4	8	20	6

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a. In order to calculate average daily traffic so that roads are designed for a "seasonal" visitation period, 80% of the total annual visitation was used. This analysis was accomplished on a road-by-road basis.

b. Number of months totaling 80% annual visitation is shown in parenthesis.

c. There is a high percentage of through-traffic.

d. Figure will likely increase following completion of current improvement project.

e. 1984 visitation figures are used.

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Table 2: Ten-Year Annual and 1984 Monthly Visitation

1984	3,260,600	January	113,275
1983	2,874,900	February	112,107
1982	2,953,200	March	160,600
1981	2,754,500	April	201,449
1980	2,482,300	May	213,949
1979	2,589,400	June	347,127
1978	2,996,600	July	487,802
1977	2,658,900	August	539,336
1976	2,672,500	September	589,794
1975	2,654,600	October	234,607
		November	155,262
		December	105,324
		Total	3,260,632

Note: The months of April through October comprise 80 percent of the total visitation--2,614,064.

commercial traffic; weather conditions, such as frequent downpours, ground fog, and ice in winter; and the road conditions described earlier in the "Problem Statement" contribute to many of the accidents.

Many park roads require considerable maintenance because of their proximity to the shifting, seasonally flooding rivers and to the "worn out" condition of roadbeds and surfaces (refer to "Problem Statement"). Culvert cleaning and streambank protection are important maintenance activities that help prevent the undermining of the roads by the forces of water. Removal of shrubs and branches from the line of vision for improved sight distance is also an important function performed by the park maintenance staff. Road surface maintenance by the staff is limited to minor grading, snowplowing, chip seals, and filling of potholes.

AFFECTED NATURAL AND CULTURAL RESOURCES

Olympic National Park is surrounded by national forest, state forest, and private timber lands. According to a 1980 report by the U.S. Forest Service, only 1 percent of old-growth reserve timber remains uncut outside the park on the Olympic Peninsula (Forest Service, U.S. Department of Agriculture 1980). Thus, the importance of preserving the climax forest ecosystems of the Olympic Peninsula increases as logging outside the park continues. The impact of logging on the peninsula becomes quite clear to park visitors as they frequently encounter logging trucks on major routes and clear-cut areas adjacent to the park.

Primary natural resource concerns in relation to road design include soils, streams and fisheries, vegetation, and endangered species. Glacial scouring has stripped away soil and left a barren surface on which vegetation and soils have slowly developed. Soils are still youthful and quite shallow except on river terraces and local depressions. Unconsolidated soils are often prone to slumping and erosion along river terraces. Development of soils is very slow in alpine areas.

Olympic National Park has a long history of great recreational fishing. Anadromous fish populations, however, have greatly declined in number in the Olympic Peninsula area due to over-harvest, hydropower development, siltation of streams from timber harvesting, and other habitat destruction. Genetic composition of native stocks may have been altered as well by the introduction of hatchery strains. Anadromous fishes may also have been affected when culverts beneath park roads became impassable barriers due to design or blockage by silt or vegetation debris. Fisheries management is considered a critical problem in the park and currently holds a high priority among resources management issues.

Olympic is notable for its great variety of life zones, which range from rain forest to alpine. Historically, access into the Olympic Range was along river valleys, and today's roads still parallel many of these valleys. Large, old-growth trees border many of the roads, and as stated earlier, are of special concern in the national park. Roads also bring visitors to coastal areas along US 101 and to the rain forest along the Queets, Quinault, and Hoh roads. Montane and subalpine coniferous forests are accessible via the Heart O'Hills Road, Obstruction Point Road, and Deer Park Road. These roads also access several subalpine and alpine meadows.

No endangered or threatened plant species, as listed by the U.S. Fish and Wildlife Service (Federal Register 1980) and the State of Washington Natural Heritage Program, are known to occur along roadsides.

The federal list of endangered or threatened wildlife includes three species of birds occurring in Olympic National Park: American peregrine falcon (Falco peregrinus anatum), bald eagle (Haliaeetus leucocephalus), and spotted owl (Strix occidentalis). Only three active peregrine nests are known to occur in Washington, and all are in the vicinity of the park. Bald eagles are locally common seasonally along the Pacific coast and major river valleys. Although the actual status of the spotted owl in the park is unknown, some scientists believe that the largest remaining population of this species may occur in Olympic National Park.

Cultural resource considerations in the design of road improvements include archeological sites and historic structures (buildings, earthworks, and bridges) on and near the alignment of existing roads and those that may be near proposed realignments.

Surveys for identification of endangered species and cultural resources will be conducted as part of the environmental assessment process for individual improvement projects.

EXISTING ROADS INVENTORY

Table 3 provides the data used in functionally classifying and making recommendations for roads in Olympic National Park. Route numbers were derived primarily from FHWA's Road Inventory and Needs Study (1984). The table indicates the number of accidents and vehicle restrictions/hazards by road section where applicable.

In order to classify each segment, it was important to determine the purpose/function and intended visitor use of each road. This information along with specific resource concerns and data pertaining to road conditions are the factors analyzed to provide the classification recommendations.

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Table 3 Existing Roads Inventory

Route Information			Intended Visitor Use											
Route Number	Road Segment (from-to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)[1]	Traveled Way Surface/Shoulder Surface	Max. Grade (percent)/Roughness	Drainage/Foundation/Stability[2]	Posted Speed Limit (mph)[3]	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents: Injury/Property/Fatality[4]
401	Headquarters Area Headquarters Roads	1.20	Serves headquarters, maintenance areas	Historic area, foot trail to visitor center	30	Flat	18/0-2	Paved/grass	7/good	G/F/F	10	--	None	0/ 0/0
221	Pioneer Visitor Center Road	0.10	Serves as access to visitor center	Scenic drive, foot trail	80	Flat-rolling	22/2	Paved/grass	4/good	G/G/G	NP	--	None	
010	Heart O'Hills Hurricane Ridge Road (Race Street to Hurricane Lodge)	17.65	Major park attraction - access from town to Hurricane Lodge, ski area, campground, and trailheads	Drive through variety of life zones-lowland to alpine scenic views	886	Mountainous	26/1-3	Paved/paved	7/good	G/G/G	35	--	Monitored and often closed in winter	12/17/2
109	Hurricane Hill Road (Lodge to trailhead)	1.36	Access from lodge to trailhead to picnic area and trailhead	Views of alpine life zones, scenic vistas	125	Mountainous	18-20/0-2	Paved/grass	7/poor	P/P/P	20	--	Closed in winter, sharp curves	1/ 3/1
200	Heart O'Hills Campground Road	1.51	Serves 105-site campground and amphitheater	Lowland forest, camping, hiking	128	Rolling	14/0-2	Paved/grass	5/slight roughness	G/G/G	--	--	None	0/ 0/0
217	Obstruction Point Road	7.74	Scenic drive, access to trailhead	Scenic drive through alpine life zone	30	Mountainous	12-16	Dirt	15-20/rough	P/G/P	20	--	According to FHWA, most hazardous road in park/open July through September; RVs and trailers prohibited	0/ 0/0
110	State Highway 111 (park boundary to Hurricane Ridge Road)	0.50	Dead end road	N/A		Mountainous	26/0	Paved/gravel	7/rough	P/P/P	NP	--	Closed	
111	Little River Road (Hurricane Ridge Road to park boundary)	0.10	Access to Lake Dawn and Elwha Valley	Views of high mountains, lake	125	Flat-rolling	17	Gravel	8/rough	G/G/G	15	--	None	
402	Heart O'Hills Residential Road	0.10	Access to ranger residences	Administrative only	15	Rolling	19/0	Paved	4/good	G/G/G	NP	--	None	
100 Section 1	Elwha Elwha Valley Road Park boundary to Lake Mills	10.35 (3.88)	Campgrounds at MP 1.12 and 2.52 Access to Lake Mills	Open views, forested drive	484	Flat to rolling	18/0-2	Paved/grass	9/fair	P/F/P	35/25	Good (45 years)	Trailers not recommended, frequent slides - 6 slide areas up to MP 3.66	4/ 7/0
Section 2	Dam to campground (Road closed 4 miles from campground)	(6.67)	Serves dam operation, ranger station, trailhead to hot springs area	Same as above	50	Mountainous	17/0-2	Paved/grass	9/rough	P/F/P	25	--	Snowplowing dangerous due to limited sight distance	3/ 3/0
201	Altaire Campground Road	0.53	Serves 29-site campground, boat launch to river	Pleasant camping near river, well suited to RVs	36	Rolling	14/0-2	Paved/grass	5/slight roughness	G/G/G	--	--	None	0/ 0/0
216	Whiskey Bend Road	4.51	Access only to major trailheads for cars, pickups, horse trailers	Dense forest; some turnouts	25	Mountainous	13-15 18' wide turnouts	Gravel	9/rough	G/G/G	15	--	High accident rate on first mile	2/ 4/0
202	Elwha Campground Road	0.27	Serves 41-site campground	Well suited for RVs	106	Flat	14/0-2	Paved/grass	2/slight roughness	G/P/G	--	--	None	0/ 0/0

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[1] "Traveled way" is the width of all lanes between the shoulders; "shoulder width" is for one shoulder.

[2] G = good, F = fair, P = poor

[3] NP = not posted

[4] Totals since record keeping, 1981

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Table 3 (continued)

Route Information			Intended Visitor Use											
Route Number	Road Segment (from/to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)	Traveled Way Surface/ Shoulder Surface	Max. Grade (percent)/ Roughness	Drainage/ Foundation/ Stability	Posted Speed Limit (mph)	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents: Injury/Property/Fatality
403	Elwha ranger station utility and residential road	0.1	Serves maintenance and housing area	Administrative only	20	Flat	18-20	Gravel	2/fair	G/G/G	5	--	None	0/ 0/0
404	Elwha Dump Road- Closed													
405	Elwha Corral Road	0.10	Serves as access to corral	Administrative only	1	Flat-rolling	12	Gravel	2/good	G/G/G	NP	--	None	
406	Elwha "Estate" Road	0.15	Serves as access to estates	Administrative and private inholder only	1	Flat	8-15/0-2	Paved-gravel/ gravel	poor	P/P/P	NP	--	None, administrative and private inholder use only	
101	East Beach East Beach Road (from East Beach to north park boundary)	2.93	Beach access; serves 80 residences, resort, ranger station, trailheads, mail and school bus route connects to US 101 via county road	Forest, lake views, best swimming and lake access in park	454	Rolling	18-20/1	Paved/grass	9/fair	F/F/F	35	--	Limited sight distance at intersection; heavily loaded trucks use road; 2 hazardous curves	7/23/0
108	Lyre River Road (East Beach Road to trailhead)	0.85	Serves residential, administrative, and recreation vehicles, 30 residences, and trailhead	Forest, lake, and river views	40	Rolling	16/0-2	Paved (gravel from MP 0.65)/ grass	7/fair	P/F/F	NP	MP 0.55 bridge under reconstruction	None	0/ 8/0
408	Lyre River Log Dump Road	0.25	Serves dump	NA	1	Rolling	14	Gravel	9/rough		10	--	None	0/ 8/0
112	East Beach Picnic Area (East Beach Road to parking area)	0.15	Serves picnic area, parking	Swimming, picnicking		Mountainous	16	Gravel	9/slight roughness	G/G/G/	NP	--	None	
222	Log Cabin Road	0.90	Serves lodge, cabins, campground, boat launch, RVs and trailers	Forest, lake views, boat launch, camping	75	Flat	18	Paved-gravel	7/good	F/F/F		--	None	0/ 4/0
407	Log Cabin Spur Road	0.05	Sewage lagoon for lodge, one park house not NPS-maintained	NA	1	Flat	18	Gravel	9/rough		20	--	None	0/ 0/0
113	Barnes Point Barnes Point/Sewage Treatment Plant Road (Lake Crescent Lodge to Barnes Cove)	0.80	Serves as access to private property, Bovey Meadows, treatment plant, and concession housing	Day use/picnicking		Rolling-flat	24/2-4	Paved/gravel	0/fair	F/F/F	35	--	None (alder site to be developed)	
217	Barnes Point Service Road (new US 101 to Storm King ranger station, boat launch, and NPS residences)	0.50	Serves as access to Holloway residence, boat ramp, utility area	Boat launch		Flat	24/2-4	Paved/gravel	0/fair	F/F/F	35	--	None	
224	Lake Crescent Lodge Road (Storm King Ranger Station to lodge including internal lodge roads)	0.30	Serves lodge and cabins	Mowed, well-kept appearance	75	Flat	20/0-2	Paved/grass	7/good	G/G/G	15	--	None	0/ 0/0
225	La Poel La Poel Picnic Area Road	0.40	Picnic area, occasional campground overflow	Never logged, pleasant lake views	34	Rolling	16-18	Gravel	20/fair	G/G/P	10	--	Steep grades; narrow for RVs, trailers not recommended	0/ 0/0
204	Fairholm Fairholm Campground Road	0.82	Serves 87-site campground	Limited space for RVs	92	Flat	14/0-2	Paved/grass	2/slight roughness	G/G/G		--	None	0/ 0/0
226	Fairholm Spur Road	0.20	Access to boat launch, swimming area, campground	Lake use	46	Flat	18/0	Paved	good	G/G/G	NP	--	None	

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Table 3 (continued)

Route Information			Intended Visitor Use											
Route Number	Road Segment (from/to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)	Traveled Way Surface/ Shoulder Surface	Max. Grade (percent)/ Roughness	Drainage/ Foundation/ Stability	Posted Speed Limit (mph)	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents Injury/Property/Fatality
102	North Shore North Shore Road	4.76												
Section 1	US 101 to campground	(0.55)	Access to Fairholm Campground, ranger station, boat launch, youth camp, mail and school bus routes, picnic area, 2 trailheads, residences	Forested drive	278	Flat	19-20/0-2	Paved/grass	4/good	G/G/G	NP	--	Slide areas, erosion	0/ 2/0
2	Campground to North Shore picnic area	(2.75)	Included above	As above	150	Rolling	15-20	Gravel	9/moderate	P/G/P	NP	--	NPS maintenance stops at picnic area	0/ 5/0
3	Picnic area to Spruce R.R. trailhead	(1.48)	Included above	As above	75	Rolling	12-14	Gravel	9/rough	P/F/P	NP	--	Single lane	0/ 2/0
103	Sol Duc Soleduck Valley Road (US 101 to trailhead)	13.98	Access to Sol Duc Hot Springs Resort, campground, 3 trailheads, ranger station, fishing access	Intimate view of old-growth forest with areas of transition into second-growth, wildlife, spawning salmon	491	Rolling	15-18/0-2	Paved/grass	9/moderate	P/P/P	35	North Fork-good (45 years)	None, but occasionally freezes	5/ 9/--
205	Sol Duc Lodge Road	0.26	Serves lodge, pools, cabins, restaurant	River valley	100	Flat-rolling	18/0-2; 14/0	Paved/dirt	2/slight roughness	P/P/P		Concrete bridge-good (45 years)	None	0/ 1/0
206	Soleduck Campground Road	1.75	Serves 84-site campground	Old growth trees, river views, camping, interpretive programs, amphitheater	132	Flat-rolling	10/0-2	Paved/grass	7/rough	G/G/G		--	None, but curves difficult for large RVs	0/ 0/0
Section 1	Loop A	0.75	Included above		75									
Section 2	Loop B	1.00	Included above		57	Flat-rolling	10/0-2	Paved/grass	7/rough	G/G/G	10	--	None, but curves difficult for large RVs	0/ 0/0
409	Soleduck Dump Road	0.25	Serves dump	NA	1	Flat-rolling	12	Dirt	7/rough	G/G/G	NP		To be rebuilt or eliminated this year (FY 85)	
410	Soleduck Haul Road (USFS #2918)	2.00	Access to logging	Shortcut to Soleduck from Forks, river and fishing access	1	Flat-rolling	12/0	Paved	good	G/G/G	35	Good	USFS road, one lane, heavy logging traffic	
114	Ozette Hoko Road (boundary to parking lot); currently a county road--will belong to park eventually	2.25	Access to ocean trail, picnicking, campground, boat ramp, contact station, residences	River and lake views	78	Flat	18-20/0-2	Paved-gravel/ grass	2/poor	P/P/P	30	Coal Creek bridge needs replacement	Potholes	0/ 5/0
227	Ozette Campground Road	0.10	Access to campground, boat launch, lake	River and lake views	20	Flat	12	Dirt	0/rough	P/P/P	NP	--	Potholes	
412	Duk Point Road (park boundary to end of road)	1.00	Access to private property	Administrative use/ private property	125	Mountainous	12	Dirt	10/fair	P/P/P	NP	(2) both fair	None, but difficult dirt road driving conditions, not used by the public	

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Table 3 (continued)

Route Information			Intended Visitor Use											
Route Number	Road Segment (from/to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)	Traveled Way Surface/ Shoulder Surface	Max. Grade (percent)/ Roughness	Drainage/ Foundation/ Stability	Posted Speed Limit (mph)	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents: Injury/Property/Fatality
115	Mora Rialto Beach Road	2.60	Access to picnic area, beach, trailhead, boat launch, ranger station	River and ocean shoreline with huge beached logs, sea stacks	284	Flat	20/1-3; 14	Paved	2/good	F/G/G	25	--	Two-lane feeder; one-lane loops	
228	Mora Campground Road	1.63	Serves RVs, tent/car campers, and amphitheater	Big trees, close proximity to river, access to ocean beach	90	Flat	18-20/0-2	Paved/grass	2/good	G/G/G	25	Dickey River bridge-good (50 years)	Eroding banks along roads; need turn lane for RVs into ranger station	0/ 4/0
411	Mora Utility and Residential Roads	0.30	Serves residential and administrative uses	Administrative use only	20	Flat	18-20/1-3	Paved/gravel	2/good	G/G/G	15	--	Administrative use	0/ 0/0
116	La Push La Push Beach Road	2.00	Through-road to park passes through park; access to beach trailhead and parking	Pulloffs provided for various uses	212	Flat	20/0-2	Paved/grass	2/fair	G/G/G	35	--	None	3/ 6/0
107	Hoh Hoh Road (park boundary to visitor center)	6.26	Serves campground, visitor center, ranger station, trailhead	Rain forest, visitor center, foot trails; 7 turnouts	428	Flat	20/2	Paved/grass	7/good	G/G/G	35	--	None	0/10/0
117	Lower Hoh Road (portion within park boundary)	0.10	Access to reservation	NA	20	Flat	20/2	Paved	0/poor	P/P/P	30	--	N/A	
215	Hoh Campground Road	1.01	Serves 95-site campground, picnic area	Rain forest, large trees	116	Rolling	14	Gravel	7/smooth	G/G/G	10	--	None	
400	Hoh Residential Road	0.31	Serves residences, horse trail access, service area	NA	15	Rolling	18/0-2	Paved/grass	9 max./ smooth	G/G/G	10	--	Closed to public except for equestrian use	0/ 0/0
413	Hoh Maintenance Area Road	0.10	Serves as access to maintenance facilities	Administrative use	10	Flat	18/0	Paved	0/smooth	G/G/G	NP	--	Administrative use	
118	Oil City Road (from park boundary)	0.50	Serves as access to coastal strip, trailhead, and Oil City	Scenic view of Hoh River and trees	18	Flat-rolling	12	Gravel	2/rough	F/F/F	NP	--	Not recommended for trailers	
214	Kalaloch Ruby Beach Road	0.18	Serves beach	Wide gravel expanse	25	Rolling	24' road 180x170 parking lot	Paved/gravel lot	9/rough	G/G/P, but much cracking of pavement	15	--	None	0/ 1/0
213	Kalaloch Campground Road	1.20	Serves 66-site campground	Well suited for RVs	256	Flat	14/0-2	Paved/paved	7/smooth	G/G/G	10	--	None	0/ 9/0
119	Kalaloch Group Campground Road	0.10	Serves 189-site campground	Camping, hiking	6	Flat	20	Gravel	0/good	P/G/G	NP	--	None	
414	Kalaloch Sewage Lagoon Road	0.75	Access to sewage lagoon	Administrative use only	1	Flat	12/0-1	Paved/grass	0/Fair	G/G/G	NP	--	None	

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Table 3 (continued)

Route Information			Intended Visitor Use											
Route Number	Road Segment (from/to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)	Traveled Way Surface/Shoulder Surface	Max. Grade (percent)/Roughness	Drainage/Foundation/Stability	Posted Speed Limit (mph)	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents Injury/Property/Fatality
229	Kalaloch Lodge Road	0.50	Serves lodge, store, cabins	Access to beach	93	Flat	16/0	Paved/curb	0/good	G/G/G	15	--	None	0/ 4/0
415	Kalaloch Utility and Residential Road	0.50	Serves park personnel	N.A.	10	Flat	18/0-2	Paved/grass	0/good	G/G/G	15	--	None	0/ 0/0
219	Kalaloch-South Beach Campground Road	0.26	Serves large RVs, cars, pickups, campers	Wide gravel area	202	Flat	20' wide road 900x100 gravel area	Gravel	0/rough	P/P/P	NP	--	Closed in winter	0/ 7/0
230	Big Cedar Road	0.20	Access to Big Cedar trail	Largest cedar in park	20	Flat	30	Gravel	0/good	G/G/G	15	--	None	
106	Queets Queets Valley Road (Park boundary to campground)	13.30	Access to boating, fishing; serves ranger station, campground, trailhead	Rain forest	64	Flat	16-18	Gravel	0/rough	F/F/F	25	Salmon River good, Mud Creek-good, Matheny Creek-good	90° curve at MP 0.77; washout potential along river; potholes	2/ 6/0
212	Queets Campground Road	0.26	Serves 26-site campground and boat ramp	Year-round use by cars, pickups, campers, trailers, and vans	12	Rolling	12	Gravel	7/fair ride	G/G/G	10		River floods	0/ 0/0
104 Section 1	Quinault Quinault Road US 101 to end of pavement	14.11 (7.96)	Access to residences, private camps, resort, ranger station, junction with South Shore Road	Local tourist attraction, minimal turnouts, loop drive via NPS and Forest Service roads	118	Rolling	19-20/2	Paved/grass	7/fair	F/P/F	35	Canoe Creek and Kessler Creek bridges need replacement/Finley Creek-good	--	17/27/0
Section 2	End of pavement to South Shore Road	(6.15)	Included above	Included above	80	Rolling	12-14	Gravel	10/fair	P/F/F	25	Big Creek bridge needs rehabilitation	--	1/ 2/0
231	North Fork Road (104 to trailhead)	3.90	Access to small campground, ranger station, trailhead, school bus and mail routes	Dense old-growth rain forest, access to major trailhead	30	Rolling	14-16	Gravel	7/fair	P/P/P	25	--	River is eroding into roadway at MP 15.61	2/ 2/0
209	North Fork Campground	0.23	Serves 7-site year-round campground and trailhead	Old-growth cedars, rain forest	4	Flat	10	Gravel	0/rough	P/P/P	10	--	Inadequate trailhead parking	
210	Graves Creek Road	6.29	Serves 45-site campground and ranger station, river, trailhead--cars, vans, and campers, connects to South Shore Road	Through rain forest, along stream	85	Rolling	14-18	Gravel	7/poor ride	P/P/P	25	Concrete bridges at Howe and Cannings Creeks-good	Washout history and log jams in streams	3/ 3/0
211	Graves Creek Campground ground Road	0.37	Serves 45-site campground, backcountry trailhead, boat launch	Forested area	6	Rolling	12	Gravel	Flat/rough ride	P/F/P	NP	--	None	0/ 0/0
232	July Creek Campground Road	0.01	Serves 31-site campground	Camping, picnicking	8	Flat	12	Gravel	0/fair	G/G/G/	NP	foot bridge-fair	Walk-in	
105	South Shore Road (park boundary to 104)	1.10	No facilities--connects with routes that access campgrounds, trailheads, ranger station (County Road 210)	Views of rain forest and Quinault River	84	Rolling	18-20/0	Gravel	9/fair	F/F/F	25	Bunch Creek bridge-good, Quinault River bridge-good	Recurrent high water from Quinault River, needs bank protection	

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Table 3 (continued)

Route Information			Intended Visitor Use											
Route Number	Road Segment (from-to)	Length (miles)	Purpose/Function	Visitor Experience	Seasonal Average Daily Traffic (1984)	Terrain	Traveled Way Width/Shoulder Width (feet)	Traveled Way Surface/Shoulder Surface	Max. Grade (percent)/Roughness	Drainage/Foundation/Stability	Posted Speed Limit (mph)	Bridge Condition	Vehicle Restriction/Hazard	Number of Accidents: Injury/Property/Fatality
416	Quinault Maintenance Area Road	0.10	Access to maintenance facilities	Administrative use	1	Flat	20/5	Paved-gravel/grass	8/good	G/G/G	NP	--	None-administrative use only	
417	Joe Creek Borrow Pit Road (Quinault Road to pit) (to be abandoned within few months)	0.75	Access to borrow pit	Administrative use only	1	Rolling	12	Gravel	8/good	G/G/G	NP	--	None	
207	Staircase Staircase Road (park boundary to trailhead)	1.05	Serves year-round campground, ranger station, picnic areas, trailheads - all near MP 1.00	Mountain, lake, and river views	270	Flat-rolling	22/0-2	Paved/grass	9/fair	F/P/P	25	Bridge for administrative and pedestrian use-OK for current use levels	No restrictions; parking lot maximum 150	4/ 0/0
208	Staircase Campground Road	0.90	Serves 63-site campground	Forested camping, river views and access	62	Rolling	14/0-2	Paved	7/slight roughness	G/G/G	5	--	No trailers over 20 ft	
233	Staircase Trailhead Road	0.20	Serves as access to trailhead	None		Mountainous	10/1	Gravel	8/fair	P/G/G	NP	--	Single lane	
220	Dosewallips Dosewallips Road	1.82	Serves campground, parking, ranger station, trailheads; used by pickups, vans, cars	Dramatic views	88	Mountainous	14-16	Gravel	20/grade for 500 ft/rough	P/P/P	20	--	Rough road with steepest grade of all park roads	0/0/0
234	Dosewallips Campground Road	0.25	Access to river trailhead, campground	River, old-growth trees	30	Flat	18	Gravel	7/fair	G/G/G	10	--	Trailers not recommended	0/0/0
218	Deer Park Deer Park Road	8.60												
Section 1	Park boundary to campground	(7.80)	Access to campground, ranger station, trailheads--for cars, pickups, vans, small trailers	Forested mountain drive with few turnouts	36	Rolling-mountainous	9-15	Gravel	10/rough	F/F/F	20	--	Many curves, steep slopes, obstructed sight, open in summer only	0/0/0
Section 2	Campground to Blue Mountain viewpoint	(0.80)	Access to viewpoint, trails	Distant views, access to alpine zone	12	Mountainous	13-16	Gravel	10/rough	F/F/F	20	--	Not recommended for RVs, very rough	0/0/0
235	Deer Park Campground Road	0.50	Serves campground and trailhead	Primitive campground, tenting	14	Mountainous	14	Gravel	10-20/rough	G/G/G	15	--	Not recommended for RVs, rough, narrow, and winding	
236	Deer Park Ranger Station Loop Road	0.25	Access to ranger station	Ranger contact	10	Mountainous	18	Gravel	25/Poor	F/F/F	--	--	Junctions with main road extremely difficult to maneuver	0/0/0
1	US 101 Lake Crescent Highway (US 101), Govens Hill to Fairholm	11.95	Main highway link on Olympic Peninsula loop	Lake views, access to boat launch ramps, ranger station, camping, resort	3,787	Flat-rolling	24/2	Paved/paved	10/smooth	G/G/G	45-55	Good	None	--
2	Kalaloch Highway (US 101)	13.00	Main highway link to Kalaloch	Ocean views, access to camping	520	Flat	24/2	Paved/paved	Flat/good	G/G/G	55	Good	None	--

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IMPROVEMENT RECOMMENDATIONS

FUNCTIONAL CLASSIFICATION

The assignment of a functional classification to a park road is based on its intended use or function. Once the road is classified, projected traffic volumes, speed, terrain, and vehicle type restrictions are determined to ensure appropriate design.

For purposes of functional classification, the routes that make up a park road system are grouped into three categories based on use in accordance with the NPS "Park Road Standards" (1984): public use park roads, administrative park roads, and urban parkways and city streets. Urban parkways and city streets are not addressed in this document.

Public Use Park Roads

All park roads that are intended principally for access to and circulation within a park are placed in this category. This includes all major roads that provide access to scenic or historic areas, campgrounds, picnic areas, lodges, and similar facilities. County, state, and U.S. highways maintained by the Park Service are also included in this category. Public use park roads are subdivided into the following four classes.

Class I: Principal Park Road/Rural Parkway. Roads in this class constitute the main access routes, tour routes, or thoroughfares for park visitors.

Class II: Connector Park Road. These roads provide access within a park to areas of scenic, scientific, recreational, or cultural interest, such as overlooks and campgrounds.

Class III: Special Purpose Park Road. These roads provide circulation within public use areas, such as campgrounds, picnic areas, visitor center complexes, and concession facilities. They generally accommodate low-speed traffic and are often designed for one-way circulation.

Class IV: Primitive Park Road. Roads in this class, used primarily by specially equipped vehicles, provide access to primitive campgrounds or undeveloped areas of scientific or cultural interest. They generally accommodate low-speed traffic and are intended for recreational driving or sightseeing. These roads are not engineered and receive little, if any, maintenance.

Administrative Park Roads

The administrative park road category consists of all public and nonpublic roads intended principally for administrative purposes. It includes roads servicing employee residential areas, maintenance areas, and other administrative developments, as well as restricted patrol roads, truck trails, and similar service roads. Administrative park roads are subdivided into two classes.

Class V: Administrative Access Road. This class includes all public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas.

Class VI: Restricted Road. All roads normally closed to the public, including patrol roads, truck trails, and other similar roads, are in this class.

TYPES OF IMPROVEMENT

The accompanying sketch shows a typical cross section of a park road. Actual specifications are dependent on the design vehicle type, speed, volume, and terrain and are described in the NPS "Park Road Standards."

In addition to the proposed functional classification and design elements, table 4 shows the types of work needed to achieve NPS standards. These types, designated as maintenance, overlay, rehabilitation, and reconstruction, are defined below.

Maintenance

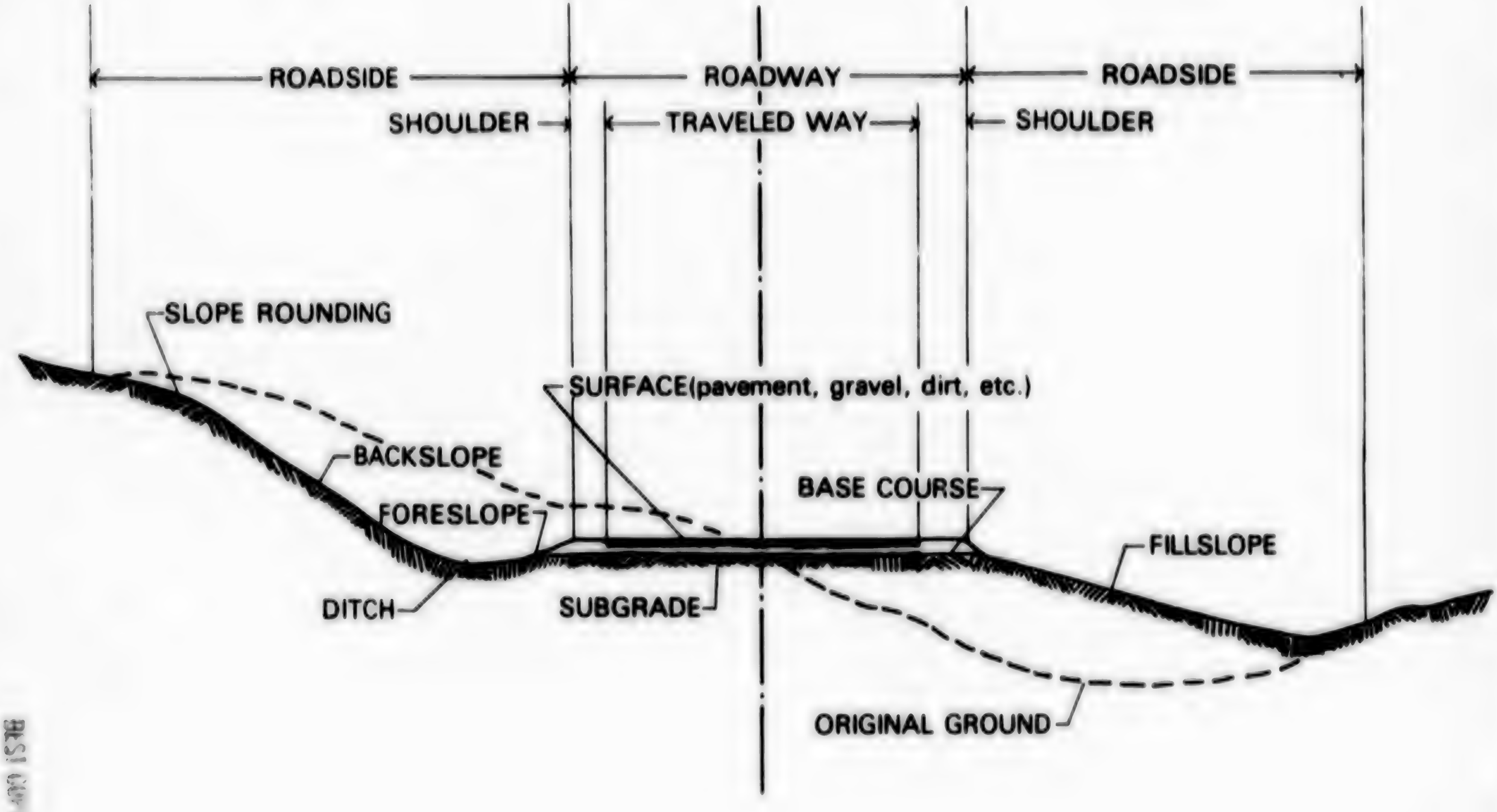
This type of improvement includes routine recurring maintenance activities to repair or preserve the existing road by patching, applying chip-and-seal, gravel blading, ditch cleanup/shaping, striping, and signing. This type of activity is normally done by the park maintenance staff.

Overlay

This type of improvement entails asphaltic overlays on existing one-way and two-lane roadways. The work consists of minor shaping of the roadbed, taking care of minor drainage problems, and overlaying with asphalt pavement to provide an adequate pavement structure. There is generally minimal disturbance beyond the roadway.

Rehabilitation

This type of work typically consists of widening less than a lane width, curve flattening, pavement/gravel surface recycling, shoulder reconditioning, and bridge repair. Sufficient aggregate base and usually asphalt pavement are applied to provide a structure that will adequately handle existing and projected traffic. Disturbance beyond the existing roadway is minimal; however, depending on the roadway width selected, it can vary from 2 to 8 feet on each side of the roadway.



TYPICAL SECTION OF PARK ROAD

Reconstruction

This type of improvement involves major reconstruction--grading, establishing drainages, and surfacing. It results in a properly designed and engineered roadway that is structurally adequate and safely handles the present and projected traffic volumes.

COMPLIANCE REQUIREMENTS

Several park roads, pullouts, and parking areas are currently programmed for some type of roadway improvement. Most impacts associated with this work are projected to occur where road relocation is involved or where sections will be widened, designated pullouts and parking areas will be increased in size, and dangerous curves will be realigned. However, the extent and precise locations of such impacts cannot be determined until the designs for each road section have been completed.

Appropriate compliance activities will be undertaken during subsequent phases of design and construction. The majority of the recommended road improvements appear to meet the criteria of being categorically excluded from National Environmental Policy Act compliance, as defined in the "Departmental Manual" (516 DM 1-7) and in the Department of the Interior's NEPA procedures (Federal Register, vol. 46, no. 2, 1981-1984, currently being updated and expanded). Specifically excluded are "routine and continuing government business, including operations, maintenance and replacement" (appendix 1, paragraph 1.7, 516 DM 2).

Each project that is designated as a categorical exclusion will require archeological, historical, and endangered and threatened plant and animal species surveys and clearances prior to construction. The findings of these surveys may place restrictions on construction, modifying specific designs. On those road segments where relocation, heavy rehabilitation, or major reconstruction is proposed, environmental assessments will be prepared. Table 4 indicates those road segments that may require an environmental assessment and those that appear to meet the criteria for a categorical exclusion.

VISITOR EXPERIENCE

Information/Orientation/Interpretation

Visitors to Olympic National Park are confronted with several realities that require their careful attention if they are to have an experience that is safe, pleasant, and as fulfilling as the beauty and variety of the park allows. These realities include a park with an immense and varied landmass requiring long travel distances between sites that offer a great diversity of physical resources and developed facilities. People enter and leave the park frequently, traversing private, state, and other federal lands that have opportunities and regulations. Accommodations and services are widely dispersed, and the road network provides a perimeter circuit (US 101) with radial spurs leading out or into various park resources or developments. Trip planning is essential to conveniently coordinate vacation desires with available resources and experiences.

The general proposals that follow will serve the urgent information/orientation needs of park visitors. Interpretive needs related to the road network are secondary priorities.

At the entrance of all spur roads leading into the park from US 101, or as close to the highway as possible, a safe turnout should be provided with an information/orientation wayside indicating where the spur road leads, distance involved, road quality (gravel, paved, etc.), outstanding resources traversed or reached (ocean, rain forest, alpine meadow), and facilities or interpretation provided along the route (if any). The obvious advantage would be to present the information clearly at the outset, hopefully eliminating any visitor disappointments or missed experiences from "roads not taken" because of lack of such information. Specific suggestions are contained in table 4 in the "Road Improvement Recommendations." At the very minimum, effective signs should be placed on US 101 at spur road junctures stating park destination or distance.

Informational waysides accompanied by pullouts (if a parking area is not already there) should be provided at the juncture of a main park road or development and a lesser park road that usually leads to a trailhead. Examples of this include, but are not limited to, an easily visible, informational sign at Hurricane Ridge describing the road and resources of Obstruction Point and Hurricane Hill; a sign at Elwha describing the road and resources of Whiskey Bend and Boulder Creek; and a sign at Fairholm describing the North Shore Road.

At least four roads have potential for future interpretive waysides, which should be widely spaced and accompanied by pullouts--Soleduck (wayside planning in progress), Dosewallips, Deer Park, and the North Shore of the Quinault. When and if roadwork is proposed, the roadway should be analyzed for potential interpretive waysides. Queets Road was not considered for interpretive pullouts since the Hoh Rain Forest will be adequately interpreted and the Queets area offers a less developed, more personal experience.

Two developed areas, Lake Crescent/Barnes Point and Kalaloch Beach, are in need of visitor contact stations and accompanying parking for a central orientation point to the immediate area and to the park in general. A developed area plan has been completed for Lake Crescent/Barnes Point. Kalaloch has many roads leading off US 101, and a central orientation point is essential for learning activity and location options. Turn lanes to these and other visitor use areas along US 101 are essential for safety and visitor orientation.

Uniformity in sign design will be an immediate clue to the automobile traveler that the wayside off[illegible] [illegible]levant park information.

Visual Quality

A park road fits well in its setting only if the view from the road is not dominated by the views of the road. To maintain the visual integrity of its setting, a road must be built or repaired with more than just efficiency and safety in mind. To an extent, roads require "hand-fitting" into the special park surroundings with the involvement of resource managers and a landscape architect with FHWA and contractors in all phases of construction--siting, clearing, revegetation with native species, and other activities. Selective vista clearing will be designated when necessary on a site-specific basis to allow visitors a chance to enjoy occasional unobstructed views of Lake Crescent, streams, the seashore, mountains, etc.

Materials for road construction within the park should be chosen to harmonize with the general character of the landscape. Road repair materials should also be consistent with those used during the original construction. Guardrails of wood or naturally weathering steel should be used where necessary and because the weathered surface is less visually intrusive than shiny metal surfaces. Cut-and-fill slopes should be graded to complement the existing topography and revegetated with native plant species where possible. The Park Service must work closely with FHWA and construction personnel to develop careful, site-specific construction techniques and compatible materials that will best further the visual integrity of the park landscape.

SAFETY AND MAINTENANCE

Reduction of accidents and maintenance costs is of prime consideration in design Site-specific recommendations are shown in table 4. Overall, safety and maintenance problems will decrease when roads are reconstructed or rehabilitated.

In consideration of the frequent poor weather conditions in the park, some paved roads will require adding shoulder stripes ("fog lines") or pavement markers. Guardrails are often necessary and will be considered with each design project. Turnaround areas are needed within the first quarter mile of the spur roads, both for visitor orientation and safety.

Emphasis must be placed on providing training and information for park staff involved in maintaining newly improved roads. In response to this need, the National Park Service is developing an operation manual to guide maintenance activities on roads improved under the federal lands highway program. Also, a design maintenance manual is being completed for the Soleduck Road. Continuity between the design and the actual use and upkeep of the road and design of connecting roads will be promoted through the development of these manuals.

NATURAL AND CULTURAL RESOURCE CONSIDERATIONS

Significant resource considerations are described briefly in table 4. Projects in areas where resource concerns are noted should have environmental assessments prepared concurrently with design alternatives in order to adequately analyze the relative impacts of workable alternatives.

ROAD IMPROVEMENT RECOMMENDATIONS

Table 4 depicts the current proposals for improving the road system in Olympic National Park. These include the functional classification of each park road (based on projected type of use), the appropriate design elements (design volume, roadway width, and surface type) for each segment, the type of improvement necessary to reach or approach NPS standards, a determination of whether environmental compliance work is necessary, and other special considerations. In addition, resource and safety/maintenance considerations and information/orientation needs are identified. Current proposals may be subject to change based on the findings of each individual project during the environmental and design phases.

The proposed classification, design elements, and improvements are based on the assumption that established use patterns in the park will not change appreciably in the next 10 years and that visitation will increase gradually.

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Table 4. Recommended Classification and Design Criteria

Route Number	Road Segment (from-to)	Length (miles)	Functional Classification	Design Volume* (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width	Traveled Way Surface	Type of Improvement Proposed	Significant Resource Considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements**	Safety/Maintenance Considerations/Comments
401	Headquarters Roads	1.20	V	50	None	18/2	Paved	Overlay/ rehabilitation	Second-growth forest, historic area (eligible for Nat. Register listing)	N/A	NHPA, sec. 106	
221	Pioneer Visitor Center Road	0.10	III	200-400	None	22/0	Paved	Overlay/ rehabilitation	N/A	Adjacent and access to main park visitor center	CE	Related to renovation of visitor center grounds
010	Heart O'Hills Hurricane Ridge Road (Race St. to Hurricane Lodge)	17.65	I	400-1,000	None	24/1	Paved	Maintenance/ overlay	Views of Olympic Range and Puget Sound, alpine meadows, wildlife	Wayside package in design	CE	Additional 0-2 feet grass shoulder
109	Hurricane Hill Road (Lodge to trailhead)	1.25	II	50-200	None	18/2	Paved	Rehabilitation	Alpine meadows, views, wilderness boundary	Info/orientation sign at lodge informing people of Hurricane Hill Trail; better use of trailhead exhibit at end of road for interpretation	CE or EA	Sensitive alpine location
200	Heart O'Hills Campground Road	1.51	III	50-200	None	14	Paved	Rehabilitation	Old-growth forest	N/A	CE	Short campground feeder section is two-lane, remainder is one-lane
217	Obstruction Point Road	7.74	III	50	No RVs or trailers	14	Gravel	Rehabilitation	Adjacent to wilderness boundary, views, alpine meadows	Better information/ orientation at beginning of road and at Ridge parking area	CE or EA	One-lane road with turnouts
110	State Highway 111 (Park boundary to Hurricane Ridge Road)	0.50	II	50	None	26/0	Paved	Maintenance	Old-growth forest	N/A	--	Connector to old Mount Angeles Road, now dead end
111	Little River Road (Hurricane Ridge Road to park boundary)	0.10	II	50-200	None within park	17	Gravel	Maintenance	Old-growth forest	N/A	--	Connector road to Elwha areas
402	Heart O'Hills Residential Road	0.10	V	50	None	18	Paved	Maintenance	N/A	None		Parking area for main trailhead

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*Design volumes were not forecasted due to irregular visitor use trends for last 10-year period. The volumes shown here fall within each design category based on 1984 counts (highest number of visitors in the park's history).

**Archeological clearances will be required for all road improvement projects.
CE = categorical exclusion
EA = environmental assessment

***Below park standards for the design volume due to resource protection or other considerations.

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Table 4 (continued)

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource Considerations	Information/Orientation/Interpretive Needs	Compliance Requirements	Safety/Maintenance Considerations/Comments
	Elwha											
100 Section 1	Elwha Valley Road Park boundary to Lake Mills	10.35 (3.66)	I	400-1,000	None	18/2***	Paved	Rehabilitation/reconstruction	Elwha River fishery	Interpretive sign at dam	CE	Utility right-of-way adjacent to section of road, width in excess of that proposed would have significant impact on Elwha River
Section 2	Dam to campground (road closed 4 mi from campground)	(6.69)	II	50-200	Trailers not recommended	18/2	Paved	Maintenance	Historic trail to hot springs	At road closure, place sign about hot springs, distance, etc	CE and NHPA, sec 106	DCP needed before 10-238
216	Whiskey Bend Road	4.51	II	50	None	14 w/ turnouts	Gravel	Rehabilitation	Old-growth forest, possible historic road	Trailhead exhibit in production for area	CE or EA and NHPA, sec. 106	Narrow, one-lane road to major trailhead
202	Elwha Campground Road	0.27	III	50-200	None	14 (one-way)	Paved	Maintenance	Historic CCC picnic shelters	N/A	CE and NHPA, sec 106	Short campground feeder section is two-lane, remainder is one-lane
201	Altaire Campground Road	0.53	III	50	None	14 (one-way)	Paved	Maintenance	None	None	CE	Service only
403	Elwha ranger station, utility, and residential road	0.10	V	50	None	12	Gravel	Maintenance	Eligible for National Register listing	Wayside exhibit about historic district when nominated	CE and NHPA, sec 106	Area to be nominated as a historic site
404	Elwha dump road - closed		V	50	None	12	Gravel	Maintenance	None	N/A		Service only
405	Elwha corral road	0.10	V	50	None	12	Gravel	Maintenance	None	N/A		Service to temporary housing and stock area
406	Elwha "r ate" road	0.15	V	50	None	12	Gravel	Maintenance	Riverside area	N/A	CE	Road is temporary until inholdings are purchased
	East Beach											
101	East Beach Rd. (from park boundary to north park boundary)	2.93	II	400-1,000	None	18/2***	Paved	Rehabilitation/reconstruction	Lake views and old-growth trees, many private drives	Orientation/information sign	EA	Status would change if US 101 bypass is implemented; road connects county roads on both ends; width in excess of that proposed would require removal of many old trees, taking of private property, and significant hill cuts.
108	Lyre River Road (East Beach Rd to trailhead)	0.85	II	50	None	18/0	Paved	Rehabilitation	Salmon spawning in river; segments on or adjacent to Spruce RR grade	Sign bridge one-way, pullouts needs rain forest interpretation (waysides)	CE	Paved all the way to NPS parking area
408	Lyre River Log Dump Road	0.25	V	50	None	14	Gravel	Maintenance	Adjacent to Lyre River	None	CE	Service only

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Table 4 (continued)

Route Number	Road Segment (from-to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource Considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements	Safety-Maintenance Considerations/Comments
	Elwha (cont.)											
112	East Beach Picnic Area Rd. (East Beach Rd. to parking area)	1.50	II	50	None	18	Gravel	Rehabilitation	Lakeside area, old-growth trees	Orientation to beach area	CE or EA	Service to beach area, additional parking needed as well as new access
222	Log Cabin Road	0.50	III	50-200	None	18/0-2	Paved	Maintenance	Lake proximity	Resort orientation	CE	Service to Log Cabin Resort
407	Log Cabin Spur Road	0.05	V	50	None	18	Gravel	Maintenance	None	None	CE	Service only
	Barnes Point											
114	Barnes Point/Sewage Treatment Plant Road (Lake Crescent Lodge to Barnes Cove)	0.30	III	50	None	14 with turnouts	Paved	Rehabilitation	Adjacent to large second-growth trees		CE	Service road to alder site, Bovey Meadows, and private property
237	Barnes Point Service Road (new US 101 to Storm King ranger station, boat launch, and NPS residences)	0.50	III	50	--	24/0	Paved	Restoration	Lakeside road	Lakeside orientation	CE/EA	To be renovated - serves day use and NPS housing areas
224	Lake Crescent Lodge Road (Storm King ranger station to lodge including internal lodge roads)	0.50	III	50-200	None	20/0-2	Paved	Rehabilitation	Lake Crescent and Rosemary Inn historic districts, lake views, old-growth trees	Information/interpretive signs developed concurrently with road/parking facility design for Lake Crescent	CE/EA and NHPA, sec. 106	Internal circulation needed for expansion; possibly one-way
225	La Poel Picnic Area Road	0.40	III	50	Size limits	16-18/0-2	Paved	Maintenance	Large trees, salmon spawning creek	Day use area		Campers and RV size restriction
	Fairholm											
204	Fairholm Campground Road	0.82	III	50-200	None	14	Paved (one-way)	Maintenance	Historic CCC picnic shelters	N/A	CE and NHPA, sec. 106	Short campground feeder section is two-lane; remainder is one-lane
226	Fairholm Spur Road	0.20	III	50-200	None	18/0	Paved	Rehabilitation	Proximity to lake	Day use/picnic areas/ viewpoints	CE/EA	To serve potential new store location
	North Shore											
102 Section 1	North Shore Road US 101 to campground	4.76 (0.55)	II	200-400	None	18/2	Paved	Maintenance/ overlay	Proximity to lake, Camp David		CE	
Section 2	Campground to picnic area	(2.75)	II	50-200	No trailers over 20 feet	18	Gravel	Rehabilitation		Information/orientation sign at campground about road and trail	CE	Connector road to proposed bike route; status could change with bike path design
Section 3	Picnic area to trailhead	(1.46)	III	50-200			Gravel	Conversion to trail				Convert road to foot and bike trail

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Table 4 (continued)

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource Considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements	Safety-Maintenance Considerations/Comments
	Sol Duc											
103	Soleduck Valley Road (US 101 to trailhead)	13.96	II	400-1,000	None	18/2	Paved	Reconstruction	Spawning summer coho visible at salmon cascades; large hemlocks and Douglas fir	Limited waysides; space appropriately	EA	Under design/renovation FY 86
205	Sol Duc Lodge Road	0.26	III	50-200	None	18/2	Paved	Reconstruction	Soleduck River	Orientation/information wayside about trailhead at entrance	CE	Under design/renovation FY 86
206	Soleduck Campground Road	0.72	III	50-200	None	14	Paved (one-way)	Rehabilitation/ reconstruction	Old-growth trees		CE/EA	Short campground feeder section is two-lane; remainder is one-lane
Section 1	Loop A	0.75	III	50-200	RV length	10-12/0-2	Paved	Rehabilitation	Old-growth trees	Campground	EA	Under design/renovation FY 85
Section 2	Loop B	1.00	III	50-200	RV length	10-12/0-2	Paved	Rehabilitation	Old-growth trees		EA	Under design/renovation FY 85
409	Soleduck Dump Road	0.25	VI	50		12	Dirt	Reconstruction	Old-growth trees			To be redesigned under Soleduck Road project
410	Soleduck Haul Road	2.00	VI	50	Logging road restrictions	14/2	Paved	Maintenance	Old-growth trees			USFS road, one-way traffic with pullouts
	Ozette											
114	Hoko Road (boundary to parking lot)	2.25	II	50-200		18/2	Paved	Reconstruction	Lakeshore environment, wildlife, ocean	Information/orientation at turnoff from US 101; need Ozette DCP		DCP needed before 10-238
227	Ozette Campground Road	0.10	III	50		14	Gravel	Reconstruction	Lakeshore environment		CE/EA	To be reconstructed per new DCP guidelines; DCP needed before 10-238
412	Duk Point Road	1.00	VI	50-200		12	Gravel	Maintenance	Wilderness ocean shoreline	None - restricted areas	CE	Access and patrol road, provides access to inholdings at Duk Point
	Mora											
115	Rialto Beach Road	2.60	II	200-400	None	18/2	Paved	Reconstruction/ maintenance	Quillayute River and Pacific Ocean	Information at road end with interpretive signs		Base slippage along river area
228	Mora Campground Road	1.63	III	50-200	None	20/0/14	Paved	Maintenance/ overlay	Quillayute River and Pacific Ocean	Information sign at the turnoff to LaPush Road		Campground feeder section is two-lane, remainder is one-lane
411	Mora utility and residential roads	0.30	V	50	None	14 with turnouts	Paved	Maintenance	N/A			

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Table 4 (continued)

Route Number	Road Segment (from-to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements	Safety-Maintenance Considerations/Comments
	La Push											
116	La Push Beach Road	2.00	II	200-400	None	20/2	Paved	Reconstruction	Ocean views, wilderness beach access	Various turnoffs/parking areas to beach access trails	CE	Main service road to La Push Indian Reservation
	Hoh											
107	Hoh Road (park boundary to visitor center)	6.28	II	200-400	None	20/2	Paved	Maintenance	Fisheries	Pullouts need rain forest interpretation waysides, need pullout and orientation at US 101	CE	
117	Lower Hoh Road	0.10	II	50	None	20/2	Paved	Maintenance			CE	
215	Hoh Campground Road	1.01	III	50-200		14	Gravel	Maintenance	Rain forest, old-growth forest		CE	Short campground feeder section is two-lane; remainder is one-lane
400	Hoh Residential Road	0.31	V	50	None	18/2	Paved	Maintenance	Rain forest, large trees		CE	
413	Hoh Maintenance Area Road	0.10	VI	50	None	18/0	Paved	Maintenance	None	None	CE	Service only
118	Oil City Road	0.50	II	50	None	12	Gravel	Maintenance	Hoh River shoreline		CE	Main access to park inholders
	Kalaloch											
214	Ruby Beach Road	0.18	II,III	50		20/4,14/0	Paved	Rehabilitation/ overlay	Proximity to Cedar Creek	Interpretive sign at end of parking area	CE	Short spur road and parking area for beach access; comfort station adjacent
213	Kalaloch Campground Road	1.20	III	200-400		14/0	Paved	Rehabilitation		DCP necessary; visitor contact station needed for area, major RV use area	CE	Short campground feeder section is two-lane; remainder is one-lane
119	Kalaloch Group Campground Road	0.10	II	50	None	12	Gravel	Maintenance/ rehabilitation	Heavy brush, adjacent to beach bluff	None	CE	Road connects with interior roads of Kalaloch Resort
414	Kalaloch Sewage Lagoon Road	0.75	V	50	None	12/0	Paved	Maintenance	Heavy brush, swamp areas adjacent	None	CE	Utility areas
225	Kalaloch Lodge Road	0.50	III	50-200	Lodge guests	18/0	Paved	Reconstruction/ overlay	Proximity to ocean	Interpretive area within lodge area		Access to beach trail parking area
415	Kalaloch Utility and Residential Road	0.50	V	50	None	18/0+2	Paved	Maintenance	None	Kalaloch area needs visitor information facility, DCP		Access to maintenance, housing, and water treatment facilities
219	Kalaloch-South Beach Campground Road	0.26	III	50-200	None	20' road; 900' x 100' gravel area	Gravel	Rehabilitation	Adjacent to ocean	Major area for visitor contact	CE	Major RV use area
230	Big Cedar Road	0.20	III	50	None	18	Gravel	Maintenance	Largest cedar tree in park	Need sign at US 101 about big cedar tree		Short road to interpretive area

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Table 4 (continued)

Route Number	Road Segment (from-to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements	Safety-Maintenance Considerations/Comments
	Queets											
106	Queets Valley Road (park boundary to campground)	13.30	II	50-200	None	18***	Gravel	Rehabilitation/ reconstruction	Rain forest, adjacent to Queets River and river lowlands	Need pullout space and orientation at US 101; need interpretation along road concerning history	CE/EA	High precipitation area requires exceptional drainage
212	Queets Campground Road	0.26	III	50	None	12	Gravel	Rehabilitation/ reconstruction	Proximity to river	Internal campground information	CE	Short campground feeder section is two-lane, remainder is one-lane, primitive campground area, needs upgrade
	Quinault											
104 Section 1	Quinault Road US 101 to end of pavement	14.11 (7.96)	II	50-200	None	20/2	Paved	Reconstruction/ rehabilitation	Large trees-Douglas fir and spruce; elk herds	Need orientation/information pulloff at US 101 or campground	EA	Improvements to the Quinault Road (sections 1 and 2) and the South Shore Road are subject to the recommendations of a programmed DCP
Section 2	End of pavement to South Shore Road	(6.15)	II	50-200	None	18/2	Paved	Reconstruction/ rehabilitation	Steelhead spawning streams		EA	Reconstruction in narrow area; combine with South Shore Road improvement
231	North Fork Road (Route 104 to trailhead)	3.50	II	50	None	14 with turnouts	Gravel	Reconstruction	Steelhead spawning streams; old-growth forest		CE	Single lane with turnouts; conflict with lowland river basin and roadbed
209	North Fork Campground Road	0.23	III	50	None	10	Gravel	Reconstruction		N/A	CE	Ends in trailhead parking
210	Graves Creek Road	6.29	II	50-200	None	18	Gravel	Reconstruction	Proximity to river, old-growth forest		CE	Continual problems with river washouts
211	Graves Creek Campground Road	0.37	III	50-200	None	12	Gravel	Rehabilitation	Old-growth forest		CE	Short campground feeder section is two-lane; remainder is one-lane
232	July Creek Campground Road	0.20	III	50		12	Gravel	Maintenance	Old-growth forest	Internal campground	CE	Small foot bridge, internal in campground
105	South Shore Road (park boundary to Route 104)	1.10	II	50-200	None	18/2	Paved	Reconstruction	Proximity to river, elk herds	Need orientation sign at US 101 or at Forest Service interpretive area	EA	
416	Quinault Maintenance Area Road	0.10	V 50	None	16/5	Paved-gravel			N/A	None		DCP required prior to 10-238
417	Joe Creek Borrow Pit Road (Quinault Rd. to Pit)	0.75	VI 50	Administrative use only	12	Gravel			Old-growth trees	None	CE	To be abandoned

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Table 4 (continued)

Route Number	Road Segment (from/to)	Length (miles)	Functional Classification	Design Volume (vehicles/day)	Design Vehicle Restrictions	Traveled Way Width/ Shoulder Width (ft)	Traveled Way Surface	Type of Improvement Proposed	Significant Resource considerations	Information/Orientation/ Interpretive Needs	Compliance Requirements	Safety-Maintenance Considerations/Comments
	Staircase											
207	Staircase Road (park boundary to trailhead)	1.05	II	200-400	None	20/0	Paved	Reconstruction	Salmon spawning area of river along road	See DCP: waysides in production are not sufficient; visitor orientation needed near US 101 junction	CE	Phone line near road
208	Staircase Campground Road	0.50	III	90-200	No trailers over 20 feet	14/0	Paved	Reconstruction		See comment above	CE	Need new entrance; short campground feeder road is two-lane; remainder is one-lane
233	Staircase Trailhead Road	0.20	III	90	None	14/0	Paved	Reconstruction	Adjacent to the river	Visitor orientation to Staircase services	CE	Terminates in day use and trailhead parking
	Dosewallips											
220	Dosewallips Road	1.82	II	90-200	Horse trailers restricted	18	Gravel	Reconstruction	Pillow lava outcrops; proximity to river	Need information/orientation sign at US 101 junction; interpretation of river and ecology	CE	20% grade to remain; single lane road with turnouts
234	Dosewallips Campground Road	0.75	III	90	None	10	Gravel	Rehabilitation	Old-growth cedars and river front	Internal campground information	CE	
	Deer Park											
218 Section 1	Deer Park Road Park boundary to campground	8.60 (7.80)	II	50		14 with turnouts	Gravel	Rehabilitation/ reconstruction	Alpine meadows	Need information/orientation sign on US 101 and Deer Park Road	CE or EA	One-lane road with turnouts; narrow roadbed, steep drop-offs
Section 2	Campground to Blue Mountain Viewpoint	(0.80)	II	50		14 with turnouts	Gravel	Rehabilitation	Views of Hood Canal, alpine meadows	Interpretive area for alpine environment	CE or EA	Parking area at road end to control access
235	Deer Park Campground Road	0.50	III	50		12	Gravel	Rehabilitation	Alpine environment	Internal campground	CE	Planning effort required to set objectives
236	Deer Park Ranger Station Loop Road	0.25	III	50		18	Gravel	Rehabilitation	Alpine			Tight turns into main road areas need correction
	US 101											
1	Lake Crescent Highway (US 101), Govens Hill to Fairholm	11.95	I	4,000-6,000	None	22/4	Paved	Maintenance	Lake Crescent shoreline	Pull-outs provided	CE	
2	Kalaloch Highway (US 101)	13.00	I	400-1,000	None	22/4	Paved	Maintenance	State coastal highway	Pull-outs provided	CE	Rehabilitated during FY 83-84

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ADDITIONAL STUDIES REQUIRED

Conduct 101 bypass study (101 to 112).

Develop the roadside vista clearing plan recommended by the resources management plan.

Work with the U.S. Forest Service and adjacent landowners to improve routes leading to Staircase and Dosewallips areas (routes 207, 208/220) and establish a continuing interagency maintenance agreement.

Develop interagency maintenance agreements for road maintenance on state/county connector roads or roads accessing the park.

Study the potential for bicycle route along north shore of Lake Crescent (along Spruce Railroad right-of-way).

Study the potential for eastward relocation of US 101 through the coastal strip.

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the editorial and graphics staffs of the Denver Service Center. NPS D-90, December 1985

END

06-04-86